ENVIRONMENTAL ISSUES AFFECTING COAL AND CCTs INTO THE NEXT MILLENNIUM

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The panelists discussed a variety of environmental issues that affect CCT deployment, and more broadly speaking, power development in general. The issues were both international and domestic in nature. I summarize below the issues discussed and possible solutions.

I. ISSUES

International Issues

James Newman of Golder Associates described the environmental guidelines and requirements facing developers of power plants abroad. The guidelines and requirements can come from the financing entity, the host country, or the internal policy of an independent power producer (IPP). The financing entity may be a multi-national, regional, or national development bank and/or a private bank, finance company, or trading company. The guidelines or requirements may be procedural in nature (concerning environmental impact assessments, management, monitoring, public participation in planning) or operational in nature (limits on emissions or impacts on natural resources). Adherence to ISO 14000 may become an important procedural requirement.

These guidelines and requirements may pose a confusing web for a developer. However, many finance entities defer to World Bank guidelines. This can simplify the situation, but those guidelines are, themselves, in a long process of revision, creating considerable uncertainty.

Domestic Issues

Considerable uncertainty exists with respect to domestic environmental requirements as well. Brian McLean of the U.S. Environmental Protection Agency discussed current and proposed EPA regulations that affect power plants. The 1990 Clean Air Act Amendments are still being

implemented in stages as directed by the legislation. For example, Phase I of the NOx and SO2 programs are underway, with Phase II coming in 2000. Other programs in the pipeline include the utility air toxics MACT and regional ozone programs. In addition, in November 1996, EPA made proposed revisions to the National Ambient Air Quality Standards for ozone and particulate matter. These standards could result in significant additional requirements for emission reductions from power plants.

Climate Change

The issue of climate change spans the domestic and international agendas. Linda Silverman of the Department of Energy discussed the latest developments in the Framework Convention on Climate Change (FCCC). The signatories to the FCCC are in the process of negotiating a binding agreement on quantified emissions limitations and reductions for the post-2000 period. This would be a major step beyond the current non-binding agreement on limiting greenhouse emissions in the year 2000 to 1990 levels (which most countries will not achieve). The U.S. position is to support an agreement that contains verifiable, medium-term emission targets that are realistic, achievable, and allow maximum flexibility. If an agreement goes into force, it would undoubtedly require limitations or reductions in fossil fuel combustion. Mark Mills of Mills, McCarthy, & Associates presented an analysis of electro-technologies that I discuss below under "SOLUTIONS".

Uncertainties Loom Large

There is little doubt that international and domestic policies will demand improved environmental performance by the electric power sector in the future. The presentations of these speakers and two Congressional staff also indicated the large uncertainties that exist over just what these future environmental requirements will be for CCT and other fossil fuel generation. Uncertainties flow from the internal decision processes of institutions such as the World Bank and EPA, the outcome of international negotiations on climate, and the impact of Congress on Administration policy proposals.

II. SOLUTIONS

My summary will highlight ideas from the panelists that could be characterized as solutions to the demand for improved environmental performance and the surrounding uncertainties. I will also offer some personal comments and observations

International Issues

Mr. Newman urged project developers to work hard to identity all the entities that might affect the environmental aspects of a power project, and determine their guidelines or requirements. Stay in close and frequent communication with these entities. Define the project early with close attention to site selection, baseline data and monitoring requirements, and public participation. I would add that, in addition, his presentation suggests that developers should press the World Bank to finalize its guidelines in order to eliminate that source of uncertainty.

Domestic Issues

Mr. McLean described the "Clean Power Initiative" under development at EPA: an effort to rationalize the current complex web of requirements and timelines, and to develop an integrated strategy for achieving the goals of the Clean Air Act with respect to the power industry. Such a strategy would employ more cap-and-trade approaches, more flexibility, and more banking. It could reduce the cost of compliance and provide more continuity to help business planning. I think there is great potential in such a strategy: it would build on the success of the SO2 trading program and is very much in the spirit of other regulatory reinvention activities underway at EPA. I would add that the more sources that EPA can include in cap and trade programs (not just utilities and IPPs), the greater the cost savings. EPA may also want to consider regional or airshed-based boundaries for trading systems if that is appropriate to the nature of the pollution problem. Finally, using an electric utility analogy, the Agency should explore "peak-shaving" approaches to some problems such as ozone. Temporary measures to address temporary peaks in pollution are under-utilized in the current system, and, in combination with permanent measures, can be cost-effective.

Climate Change

Ms. Silverman described some of the Administration's positions aimed at addressing the climate change problem in a cost-effective way. Policies should address comprehensively all greenhouse gases. Emission targets should be multi-year, rather than single-year, thus allowing nations more flexibility. Any agreement should involve a time horizon long enough to allow normal, rather than premature, turnover of capitol stock. Any agreement should allow emission trading and joint implementation. She also stressed that the U.S. opposes harmonized policies and measures because these could lead nation's away from least-cost solutions.

Mr. Mills presented analysis indicating that a multitude of technologies are emerging that substitute electricity for direct fossil fuel combustion (e.g., microwave drying for heat drying), or for another factor of production (e.g., ultrasound cleaning or chemical cleaning). In many cases, the net impact of this substitution is to decrease CO2 emissions, even if the electricity is generated by coal. I believe this phenomenon reinforces an important lesson for any effort to limit greenhouse gases: least-cost policies must recognize the complexity of the economy, and the many trade-offs that can be made. For example, a cap on electric utility emissions alone would

not be as cost-effective as a cap on all emissions. The former might prevent cost-effective net reduction in emissions resulting from a increase in utility emissions coupled with a large decrease in industrial emissions made possible through electro-technologies. Similarly, a cost-effective climate policy might result in an increase in kWh production coupled with decreases in direct fossil fuel use by industry.

The Role of Education

Maura Reidy and Barbara Wainman, staff to members of the House Interior Appropriations Committee, stated that Congress is paying a lot of attention to the issues raised here. They also stressed that Congressional members need plenty of education, especially given recent turnover and the influx of relatively young members. This is consistent with the comments from many attending the conference on the importance of education in general.